

CHILTON'S

C2150-8
2/23/89
FEBRUARY 1989

FOOD ENGINEERING

SINCE 1928, THE SOURCE ON PROCESSING, PACKAGING, AND PRODUCT DEVELOPMENT

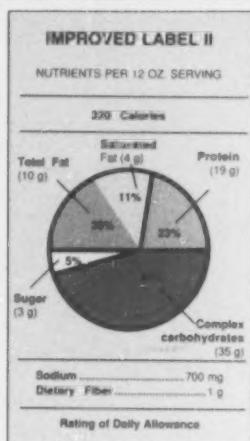
"It is very possible to have a highly concerned public with respect to diet and health issues which is not very knowledgeable about detailed nutrition facts that could help them to effectively implement these concerns." *Dr. Albert S. Levy, Center for Food Safety and Applied Nutrition.*

"Much of the information on nutrient nutritional labels is irrelevant—vitamin deficiency is not a major problem in the U.S." *Bruce Stoberglade, Center for Science in the Public Interest.*

"The major problem with nutritional education is that all sources don't speak with the same voice." *Dr. Paul F. Hopper, Food Technologists.*

266578 194 029
SUSAN GARNER
CONGRESSIONAL INFO SVC.
4520 EAST-WEST
BETHESDA
MD 20814

FOOD ENGINEERING



COVER STORY

As consumers are demanding more nutritional information about food, can manufacturers objectively educate the public and maintain a healthy bottom line?

Pages 58 to 70

Permission to photocopy for internal use or the internal use of specific clients is granted by Chilton Company for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of \$1.00 per copy of the article, plus 25¢ per page is paid directly to the CCC, 21 Congress St., Salem, MA 01970. Special requests should be addressed to The Editor. (0193-323X/85 \$1.00 + 25¢)

FOOD ENGINEERING® (ISSN 0193-323X) February 1989, Vol. 61, No. 2. Published monthly by Chilton Company, Chilton Way, Radnor, Pa. 19089 (Telephone 215/664-4000). Chilton Co., one of the ABC Publishing Companies, a part of Capital Cities/ABC Inc., New York, N.Y. Second Class Postage Paid at Wayne, Pa. 19087 and additional mailing offices. Title registered in U.S. Patent Office. © Chilton Company, 1989. All rights reserved.

POSTMASTER: Send form 3579 to Food Engineering, Post Office Box Number 2035, Radnor, PA 19089.

News

14 Industry Report

This month's Report talks about the Du Pont awards for innovation in packaging; how consumers are overlooking real health concerns and concentrating on less important ones, according to an FDA official; and the discovery of L-altrose, a non-caloric sugar, by USDA researchers.

25 Marketplace

This month's report focuses on the onslaught of new bakery and cereal products containing oat bran.

Food Packaging

37 Computer Retrospective

Computer models can determine gas levels which may reduce the effort to produce optimal packaging conditions.

40 Hurdle Method

The hurdle method represents barriers of different intensities which may prevent microbial growth in food products.

44 Retort Pouch

Shelf-stable entrees for children meet the needs of working mothers, and offer the consumer benefits not available from the original retort pouch: microwaveability.

47 Trendwatch

48 Literature

Departments

9 Editorial

10 Calendar

14 Industry Report

25 Marketplace

29 Ingredients

94 New In Print

108 People



NATURAL HONEY FLAVOR: PAGE 29



SHELF-STABLE ENTREES: PAGE 44

Features

58 Nutrition Education

Should food companies help educate American consumers concerning the relationship of diet and health? Treading the fine line between providing helpful information and adding to the confusion can be difficult.

73 Ethnic Ingredients

Mexican food sweeps the country while Italian food maintains a firm grip on its own territory. The wild fire growth of Cajun food abates as the category finds a niche for itself alongside of Oriental food.



HIGH-FIBER FOODS:

PAGE 58

From the Field

83 Supercritical extraction key to cholesterol-free butter

88 Bakers, snack-food producers automate route distribution

New Equipment

98 Processing Equipment

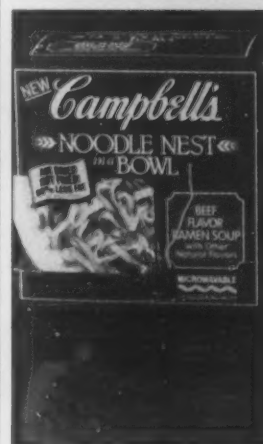
102 Sanitation & Maintenance

106 Handling & Distribution



HAND-HELD COMPUTER:

PAGE 88



Special Emphasis

ETHNIC INGREDIENTS

Ethnic food watchers agree that Mexican food is taking the country by storm with no sign of fading, but Oriental food continues to carve its niche.

Pages 73 to 81

Special Emphasis
ETHNIC INGREDIENTS

MEXICAN AND ITALIAN DOMINATE

Mexican food sweeps the country while Italian food maintains a firm grip on its own territory. The wild fire growth of Cajun food abates as the category finds a niche for itself alongside of Oriental food.

Ethnic food watchers agree that Mexican food is taking the country by storm with no signs of petering out like past fads. Annual retail Mexican food sales through September 1988 topped \$606 million, representing an increase of almost 9 percent compared to the same period in 1987. This figure comes in second to Italian food sauces whose annual retail sales through September 1988 beat all other ethnic categories with sales just over \$1 billion, an increase of 9.3 percent compared to the prior period in 1987.

The most likely consumers of Mexican foods are people with dual incomes between the ages of 35-44, with children under two, or ages in the 12-17 year old range, and with incomes over \$60,000. These figures, according to Packaged Facts, spell good news to Mexican food producers, since households headed by 35-44 year olds are expected to grow by 28 percent between 1988 and 2000.

The growth of Mexican foods has closely followed the tracks of Mexican food restaurants such as Taco Bell and Chi-Chi's that have launched chains throughout the U.S. From 1983-1989, Taco Bell doubled its unit count (2,696 by the end of 1987). Chi-Chi's plans to build 12 new units over the next year in Midwest and mid-Atlantic areas. El Torito, another Mexican chain based in California, also expects to continue its growth, although at a more conservative rate than its earlier record of 20 units a year in the early eighties.

Some of the large food processors are clammering to join the rest of the country in saying olé to Mexican foods through the introduction of new products:

•Nabisco Brands, Inc. added refried beans, taco shells, tostado shells and Mexican gar-



den salad to its *Ortega* line.

•Birds Eye has *Microwave For One* in a Rice Mexican variety.

•Frozen burritos have been spiced up by Olympia Foods, Inc. with three varieties: beans and rice; bean, rice and cheese; and quesadilla.

•Culinary Brands, Inc. added grilled beef fajitas to its *4 Chefs Fresh Food To Go* line.

•Eagle Crest Foods unveiled six varieties of enchiladas with its *El Charrito Light Entree* line.

•Chimichangas and beef and bean burritos have been added to ConAgra Frozen Foods' *Banquet* dinners.

"Tacos continue to be the top ethnic food choice away from home and now they're threatening lasagna's spot as the favorite

Chili powder is a favorite used in many Mexican dishes such as stacked enchiladas and soup. Cincinnati Chili is served over spaghetti and contains spices in addition to a surprise ingredient—chocolate. Photo courtesy: American Spice Trade Association.

PATRICIA DILLON
Senior Associate Editor

Special Emphasis ETHNIC INGREDIENTS

ethnic food at home," said Edmond Mozes, vice president of MRCA Information Services of Stamford, CT. He cited a 31 percent increase in taco consumption at home during the past five years.

Ethnic foods which demonstrated dramatic growth according to the study were burritos, refried beans and enchiladas. Frozen Mexican entrees showed a 12.5 percent growth in 1988 with annual sales totaling more than \$245.5 million, according to Selling Areas Marketing Inc. (SAMI) figures computed through September 1988. Sales of canned tortillas jumped 17.6 percent with sales of \$2.3 million in 1988 and dry taco shells showed an increase of almost five percent to \$75.8 million.

Mexican canned sauces showed a dramatic increase in sales within the Mexican food category with sales of \$307.6 million in 1988, an increase of almost 15 percent.

Hispanic marketing

Selling Mexican food to non-Hispanic Americans is one thing. Selling Mexican foods to Mexican-Americans is a whole 'nother enchilada. Hispanic consumers seek authentic flavors as well as familiar trappings such as packaging. "First generation Mexican-Americans prefer to buy salsa casera in a tin since that's the packaging used in Mexico," said John Gill, vice president and managing director of consumer ventures for McCormick & Companies product group of Hunt Valley, MD. "However in the U.S., salsa is sold in jars since gringos don't like tin."

The Vons Companies of El Monte, CA, a parent company of supermarket chains, decided a supermarket marketed specifically with Mexican-Americans in mind would be a worthwhile effort since 35 percent of Southern California's population is of Mexican descent. As of the 1980 census, Hispanics com-

prised approximately 3.4 percent of the total U.S. population and that figure is expected to blossom to 10 percent by the year 2000.

Campbell Soup of Camden, NJ has made a serious effort to sell to the Hispanic market. It acquired the *Casera* and *Caserita* brand names whose marketing goal will initially be the Puerto Rican community in New York and Cubans in southern Florida. A longer term marketing goal is to woo Hispanics in the Southwest and eventually Anglos living on Main Street, U.S.A. In addition, the firm has a U.S. Hispanic division located at its Vlastic Foods unit in Bloomfield, MI.

As Campbell's positions itself as a contender in the Hispanic market, it has found that there are some production problems endemic to ethnic foods. Everardo Aguilar, product development technologist at Campbell's Hispanic division, said that while 90 percent of the Mexican foods he works with adapt well to current production technology, certain procedures that have traditionally been done by hand have yet to be automated, such as folding tamales or burritos.

A problem arises when striving for an authentic look using automated equipment. "Shredding meat is a problem," said Aguilar. "We can dice meat with no problem but it's tough to launch new products that should have that homemade look that only shredding will give."

Spicy demands

Dave Derrick of Milwaukee Seasoning Laboratory's research & development department in Germantown, WI, said Mexican food producers have the highest demand for spices. But a problem that arises with spicy foods is that the volatile oils in the spices are often lost during high temperature processing. The usual solution is to add more spice to make up for the loss.

Another solution to the problem of flavor loss, according to Baltimore Spice's Austin Jacobus, is to use higher quality spices that not only contain more flavor but have less oil to lose.

"Our job is to know what flavor loses its high notes and which don't; then we formulate around it," said Tony Grenis, manager of technical services at Saratoga Specialties, Elmhurst, IL. Red pepper, cumin, cilantro, onion, garlic and jalapeño peppers are typical spices used in Mexican foods, he added.

"If a loss in flavor is noted during test batches," said Roger Maehler of Heller Seasonings of Bedford Park, IL, "then use of the spice is discontinued and extracts or ground spices are used as alternatives." Spice oil volatility can also be adjusted by encapsula-

Campbell Soup Company's latest plunge into the ethnic market consists of its new line of oriental-style ramen noodles.



Special Emphasis

ETHNIC INGREDIENTS

tion or by reducing vapor pressure, said Michael du Bois, vice president and general manager of the flavor division at Firmenich Inc., Princeton, NJ.

He added that ethnic foods often call for fresh ingredients that can complicate processing. Cutting, handling and the aroma of freshly chopped onions present difficulties. "Using dehydrated onions circumvents these problems but sacrifices flavor. Food technologists work with prototypes in the effort to strike a balance between logistics and flavor," said du Bois.

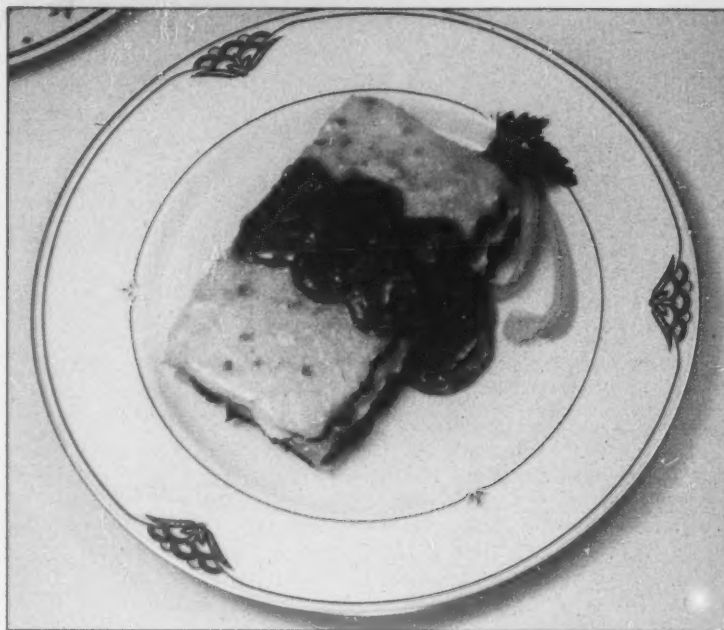
Too hot to handle

All food companies have learned that flavor must be adapted to American palates. Even if a cuisine is well accepted in one area of the country, it must be carefully formulated to be a hit nationally. Usually, this means the volume of spiciness must be toned down.

"Mexicans use hot peppers as frequently as most Americans use salt," said Georgene Pijut of FIDCO, White Plains, NY. "In Cajun country, people use hot sauce as casually as most of us use ketchup."

Nancy Rush of Quest International of Owings Mills, MD equated the ethnic food experience with learning to walk. "Americans first ate tacos before they tried dishes like molé," said Rush. Molé is a salsa that incorporates three or four types of chili along with thirty other ingredients such as peanut and sesame. This increase in taste sophistication can be seen in many supermarket aisles where larger assortments of more ethnic foods can be found.

Mexican flavors are the biggest ethnic flavor demand experienced by Ottens Flavors of Philadelphia, according to Richard Mangiere, vice president of R&D. Once sales people determine what food processors are seeking, R&D personnel start work on developing flavors most in demand. Ottens dis-



covers the best ethnic flavor standards by dining at topflight ethnic restaurants, said Mangiere. Home economists cook up a prototype with all the ingredients called for in a recipe and R&D tries to boil it down to a few basic flavors that can be replicated in mass production.

At Edlong Corporation in Elk Grove Village, IL nacho flavor is a top seller, according to Ralph Moser, vice president of laboratory, department of applications. Close on the heels of nacho are other Mexican favorites, such as chili, jalapeño and taco flavors.

Italian hangs tough

Although Mexican foods are the fastest growing segment within the ethnic food category, Italian foods remain a tough act to follow. While Italian sauces went over the bil-

America's passion for Italian food started gently with spaghetti and reached new peaks with zesty specialties such as Lasagna Al Forno (spinach lasagna). Photo courtesy: Fritzsche Dodge & Olcott.

Comparative growth rate percentages within the ethnic foods market

Period	Industry Average	Italian Foods	Hispanic Foods	Italian Sauces	Pizza	Oriental Foods
1977-1982	11.9	8.7	15.8	19.0	11.6	13.5
1982-1987	7.8	6.5	12.0	8.3	4.3	9.6
1987-1996*	8.1	8.2	8.7	8.0	6.2	8.7

*-Estimate

Source: Business Trend Analysts.

For the past several years Hispanic food has been the fastest growing ethnic food.

Special Emphasis

ETHNIC INGREDIENTS



Though the Mexican wave is fastest rising, interest in Italian food remains very strong. Ronzoni has introduced added convenience with a new line of shelf stable pasta dishes.

lion-dollar mark in 1988, the frozen food area rang up sales of \$827 million through September 1988, an increase of ten percent.

In fact, America's amoré for Italian cooking has been going on for so long and with such intensity that many no longer consider pasta and pizza to be ethnic. A similar spell has been cast by chili and bagels, which shucked their ethnic identity years ago to become "classic American" favorites.

Alan Miller of SAMI draws parallels between America's newly developed palate for spicy fare from south of the border and the resurgence of Italian foods thirty years ago.

In the late 1960s, the demand for Italian sauces first started to burst from the seams of Italian neighborhoods in Boston, Buffalo and New York. Regional brands of spaghetti and sauces were later bought by large food conglomerates who sought to replicate the regional brands' success nationally. However attempts to create a truly accepted national brand of pasta has failed up to this point because of tremendous brand loyalty within local areas. A homemaker often has the same brand of pasta on the cupboard shelf that mom or grandma used to buy.

As a result, corporate strategy has been to acquire regional brands and maintain them within their home markets. Borden with administrative headquarters in Columbus, OH has recently bought Prince Macaroni of Lowell, MA and owns regional brands such as *Creamette*, *Vimcoy*, *Ronco* and *Luxury*. Hershey's Pasta Group of Hershey, PA follows a similar strategy through its ownership of regional brands such as *San Giorgio* and *Mickey Skinner*.

In 1989, Ronzoni will launch a five-dish line of shelf-stable entrees that will require only ten minutes to prepare. No artificial flavors will be used and its convenience will be emphasized.

Supermarket shoppers are now fluent enough in identifying pasta to be able to buy various shapes whose names they couldn't even pronounce a few years before. This increase of sophistication has seeped into oth-

er areas, such as sauces and entrees. Among the newly announced sauces of 1988:

- Contadina has launched a line of six pasta sauces: Alfredo; Italian Clam; Spinach & Parmesan; Tomato & Garlic; Tomato & Italian Sausage; and Tomato & Mushroom.

- Thomas J. Lipton, Inc. is spooning out *Lipton Sauce Ups* in six new varieties, including Italian Tomato.

- Presti's *Italian Seasoning for Pizza* and a spicy version are the latest entries in the pizza sauce category.

- Young urban professionals can now stay at home to enjoy Italian breaded mozzarella sticks offered by Giorgio.

- Frito-Lay, Inc. went Italian with its introduction of *Italian Cheese Flavored Potato Chips* whose ingredients list Parmesan, Romano cheese and extracts of rosemary.

A spice company, F&C International of Cincinnati, OH developed a new natural Italian seasoning for snack products.

Oriental chow

Retail sales of oriental foods for 1988 totaled \$255.5 million, an increase of 3.7 percent. Canned oriental noodles jumped 14.5 percent to \$1.7 million during the first ten months of 1988, according to SAMI. Companies that launched new products in 1988 within the Oriental category:

- An oriental flavor in the Birds Eye line of *Microwave for One* entrees.

- Uncle Ben's addition of broccoli rice, three flavor fried rice and sweet 'n sour chicken to *Suzi Wan Stir Fry Side Dishes*.

- Prepared Products with its five varieties of oriental and teriyaki flavors of turkey jerky.

- Sakura Noodle, Inc.'s *Chikara Udon Oriental Style Noodles* in four flavors.

- Golden Ramen Oriental Noodles from Union, Inc.

- Campbell's launched a six-flavor ramen noodle line called *Noodle Nest*.

A flavor company in Cincinnati, OH, Fries & Fries' has released two new flavors: Fried Oriental and Oriental.

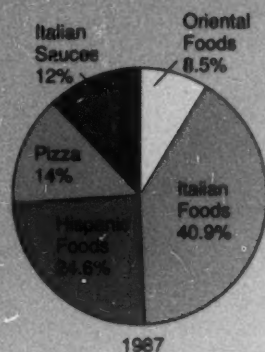
As Americans continue to develop their tastes in oriental foods, many are passing up soy sauce for teriyaki sauces. Traditionally, it is made from equal parts of soy sauce, sake and sweet sake. Teriyaki and other sauces showed the most dramatic increase within the oriental food category growing 15 percent from 1987 with sales totaling \$38 million for the first ten months of 1988, says SAMI. Soy sauce demonstrated a more modest growth of 4.2 percent with sales of 48.6 million for the same period.

Hasegawa with its American base in Lawndale, CA, offers a line of savory type

Special Emphasis

ETHNIC INGREDIENTS

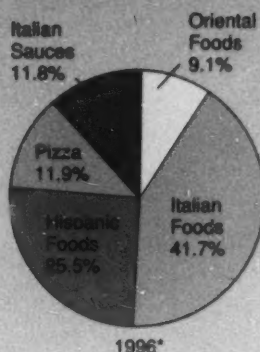
**Product mix of the ethnic foods market
(as a percentage of total manufacturers' sales)**



1987

*-Estimate

Source: Business Trend Analysts.



1996*

Italian food continues to be the leading ethnic food category as represented by total manufacturers sales.

flavors, such as Chinese chili and teriyaki. Cold processing is used to improve the taste of garlic and ginger in its sauces.

Another Oriental sauce manufacturer, Kikkoman with its U.S. industrial division based in San Francisco, said its naturally brewed sauces contain fewer calories, less salt and have a more mellow taste.

In January, *Food Engineering* focused on San-J International which brews tamari at its plant in Richmond, VA. (See *FE*, January 1989, page 55.) Tamari is an ancient Japanese seasoning that has less salt than most soy sauces familiar to Americans. Traditional tamari is made of water, soybeans and salt and is naturally fermented for at least six months.

Oriental cooking incorporates much of U.S. current concerns for nutritious food that can be quickly and conveniently prepared. As John Gill of McCormick notes, "fresh is the key word. The produce department has proven to be the most exciting area in the supermarket today. A few years ago, it was thought that frozen foods were going to decimate fresh produce, but that hasn't occurred."

Ragin' Cajun

Just a few years ago Cajun food blew across the country like a storm originating in the Louisiana Gulf. Although it has reached what many have agreed is its saturation point, it continues to hold its own. In 1988, approximately 132 new food products were introduced in the Italian food category; 111 Mexican; 65 Oriental; and 69 Cajun, according to Marketing Intelligence Services, Ltd. Cajun flavor-inspired products in 1988:

●Cajun potato chips were unveiled by Lay, Lance, Tiger Chips and Tim Cascade.

●Pride Corporation cooked up Cajun chicken strips, dinner fillets and fried chicken.

●Several varieties of Cajun mustard came from Roddenberry's, Beaverton Foods, Hudson Valley Homestead, and Sugar's Kitchen.

●Cajun King Barbecued Shrimp Sauce Mix, Butter Pecan Sauce Mix, Lemon Butter Amandine Sauce, Etouffee Seasoning Mix, Jambalaya Seasoning Mix, Cajun Fry, Gumbo Mix, and Seafood Boil came from the kitchens of Bruce Foods Corp.

Cajun and creole foods by their spicy nature has beckoned innovations from both flavor and spice companies. New product flavors and spice blends of 1988:

●Key Largo Spice Co. debuted *Blackened Seafood* and *Cajun Spice Seasoning*.

●McCormick unveiled *Creole Seasoning*.

●Cajun flavoring is also offered by Flavorite Laboratories, Inc.

●Spice Delight Inc. offered *River Road Blackened Seafood Seasoning*, *Cajun Catfish Seasoning*, *Cajun Seasoning* in regular and spicy, *Crab Boil*, *Creole Seasoning*, *Gumbo Seasoning*, *Italian Seasoning New Orleans Style*, *Jambalaya Seasoning* and *New Orleans Seasoning Chopped*.

Although other categories may be experiencing activity, Italian, Mexican, Oriental and Cajun are the major ethnic food categories attracting the most attention from food research and development departments.

As speculation regarding the next ethnic food trend swings from the Caribbean to Southeast Asia, only one thing remains certain. Americans crave adventurous taste experiences that only ethnic foods can satisfy.